IN DEPTH INSPECTION REPORT

D031085

P.I.N. 3501.60

B.I.N. 1093561

TEAM LEADER	Logan Bessel, P.E.		98781
			NYSPE LICENSE #
ASSISTANT TEAM LEAI	DER Sa	ımantha Lusher	
ASSISTANT TEAM LEAF	DER		
ASSISTANT TEAM LEAF	DER		
FEATURE CARRIED	I-481	Southbound	
FEATURE CROSSED		Manlius Center Road (NYS Route 290)	
DATE FIELD WORK BE	GAN	February 7, 2022	
DATE FIELD WORK COMPLETED		February 9, 2022	

TABLE OF CONTENTS

- IN-DEPTH CONDITION DOCUMENTATION
- IN-DEPTH PHOTO DOCUMENTATION

BIN 1093561

Purpose of Inspection

In-depth inspection was performed in 2013 and 2014 as part of PIN 3501.60; I-81 Viaduct Replacement project. This report serves to update the documentation of the existing bridge elements which will be rehabilitated as part of Phase 1 of the I-81 Viaduct project.

Visual Inspection

The general observations of this bridge during this inspection include concrete cracking and spalling. The paint system failed over 75% of the structure. The structural steel is showing signs of section loss, especially at the fascia beams. The bearings appear to be seized and no longer functioning as designed. Anchor bolts are broken or bent.

The field observations are shown on the plans. Below is a brief summary of conditions for each feature.

Superstructure

Deck – Deck is anticipated to be replaced in Phase 1

Steel – See Structural Steel Inspection Summary

Bearings – Bearings typically contained pack rust and did not appear to be functioning as intended. Anchor bolts are broken or loose.

Substructure

South Abutment – Concrete backwall contained isolated areas of delaminated concrete. Isolated spalling was located behind girders G1 and G5. The stem contained widespread delaminated concrete with vertical cracks and map-cracking. The deck joint above the abutment appeared to be leaking throughout with evidence of rust staining and moisture on the face of the backwall and bridge seat. The wingwalls are 100% map-cracked.

North Abutment – Concrete backwall contained 6" deep spalling above pedestal 1 and map cracking above pedestal 5. The pedestals exhibited cracking, spalling and delaminated concrete. The abutment stem exhibited vertical cracks, areas of map-cracking and delaminated concrete. The wingwalls are 100% map-cracked.

BIN 1093561

Special Emphasis Inspection Required

Non-Redundant/Fracture Critical Members – No Pin and Hangers – No Fatigue-Prone Welds – No Non-Categorized Fatigue-Prone Details – No Other (Specified in Text) – No

Special Emphasis Details

None

Overall Steel Condition

The steel showed signs of deterioration. The paint system is failing over 75% of the structure and bare steel was exposed. The fascia girders appeared to be in the worst condition with section loss in the web and bottom flanges throughout the length of the girders. All of the girders exhibited impact damage to the bottom flange over the NYS 290 Westbound lane. The damage includes dents and scrapes to the bottom flange.

Paint

The girders are painted. The paint system is failing over 75% of the structure. The paint is delaminated allowing the steel to corrode.

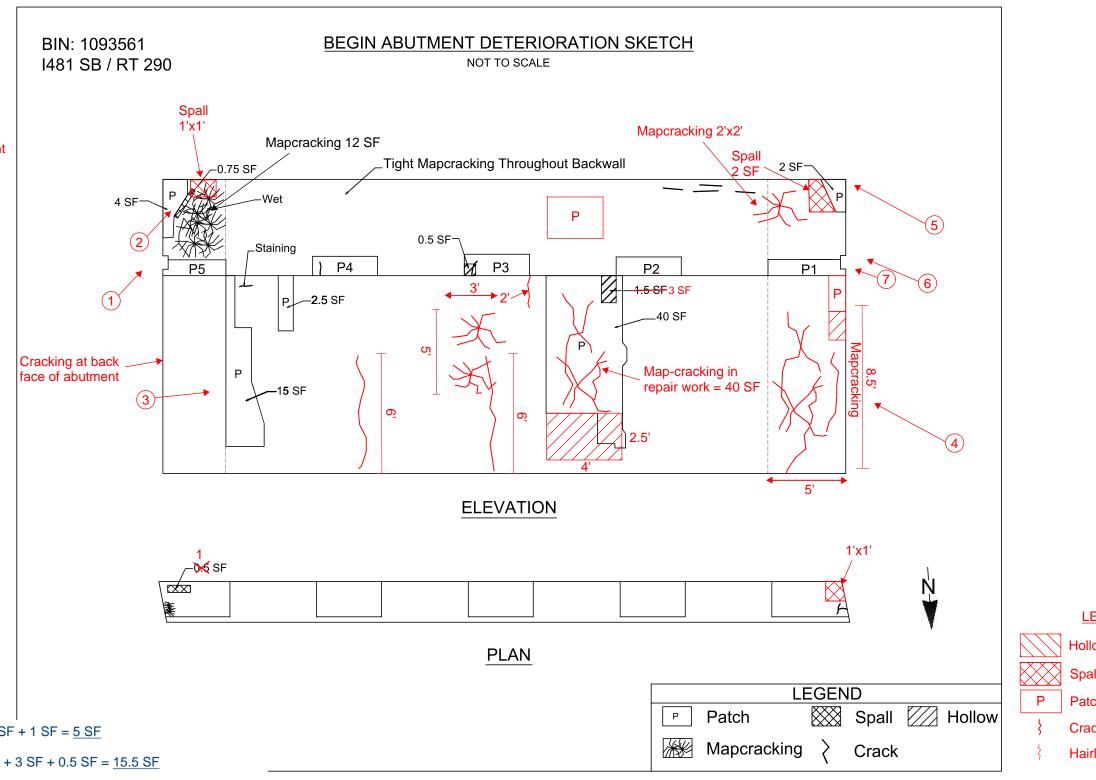
Section Loss

Section loss readings were taken at various points along the span. The readings are depicted on the framing plan and beam elevations attached. In general, the areas of most significant loss were the lower 18 inches of the web and the bottom flange. The fascia of girders G1 and G5 exhibited the most significant section loss.

IN-DEPTH CONDITION DOCUMENTATION



- 1) Spalling concrete fascia and mid wingwall
- 2 Spalling concrete fascia and backwall, rust staining on abutment
- (3) Abutment general view
- 4 Abutment general view, mapcracking, repair patch, flaking sealer
- (5) Spalling on concrete fascia, cracking and rust staining
- 6 Pedestal 1 cracking and rust staining
- (7) Pedestal 1 spalling, cracking and rust staining



QUANTITIES

<u>Spall Areas</u> = 1 SF + 2 SF + 1 SF + 1 SF = <u>5 SF</u>

Hollow Areas = (2.5'x4') + 2 SF + 3 SF + 0.5 SF = 15.5 SF

Map-Cracked Area = 12 SF + (3'x5') + 40 SF + (2'x2') + (5'x8.5) = 113.5 SF

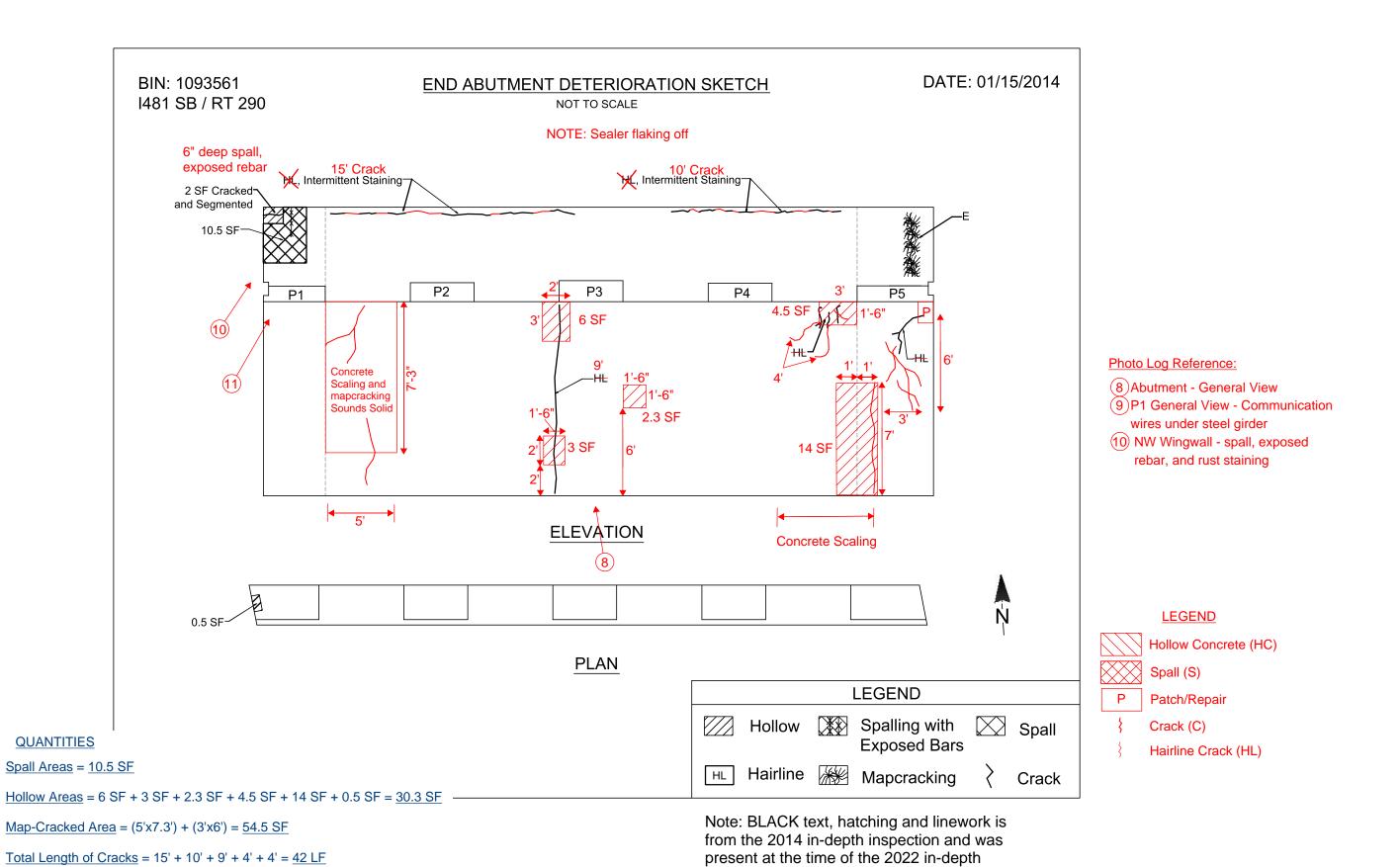
Total Length of Cracks = 6' + 6' + 2' = 14 LF

Note: BLACK text, hatching and linework is from the 2014 in-depth inspection and was present at the time of the 2022 in-depth inspection.

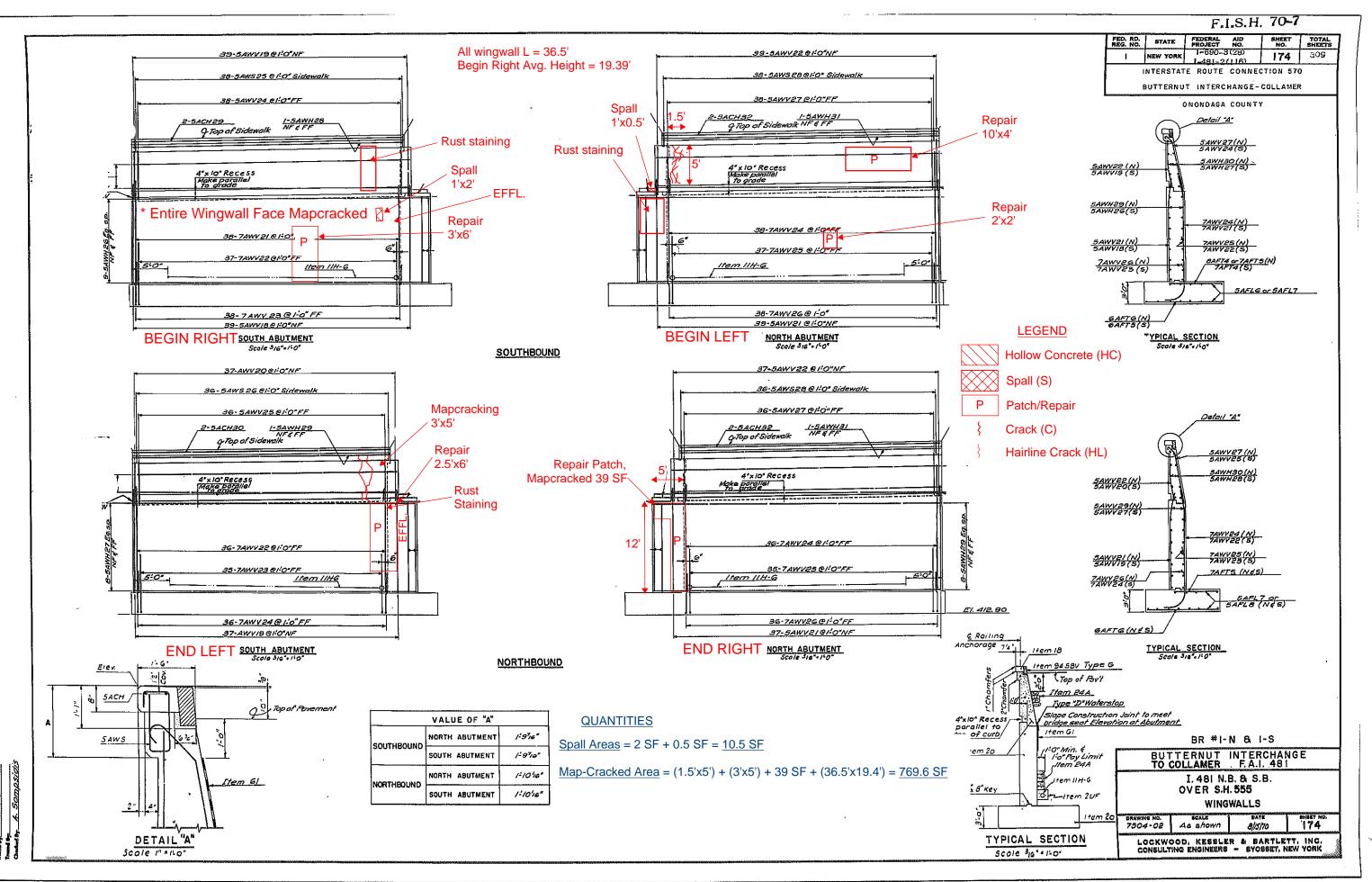
LEGEND

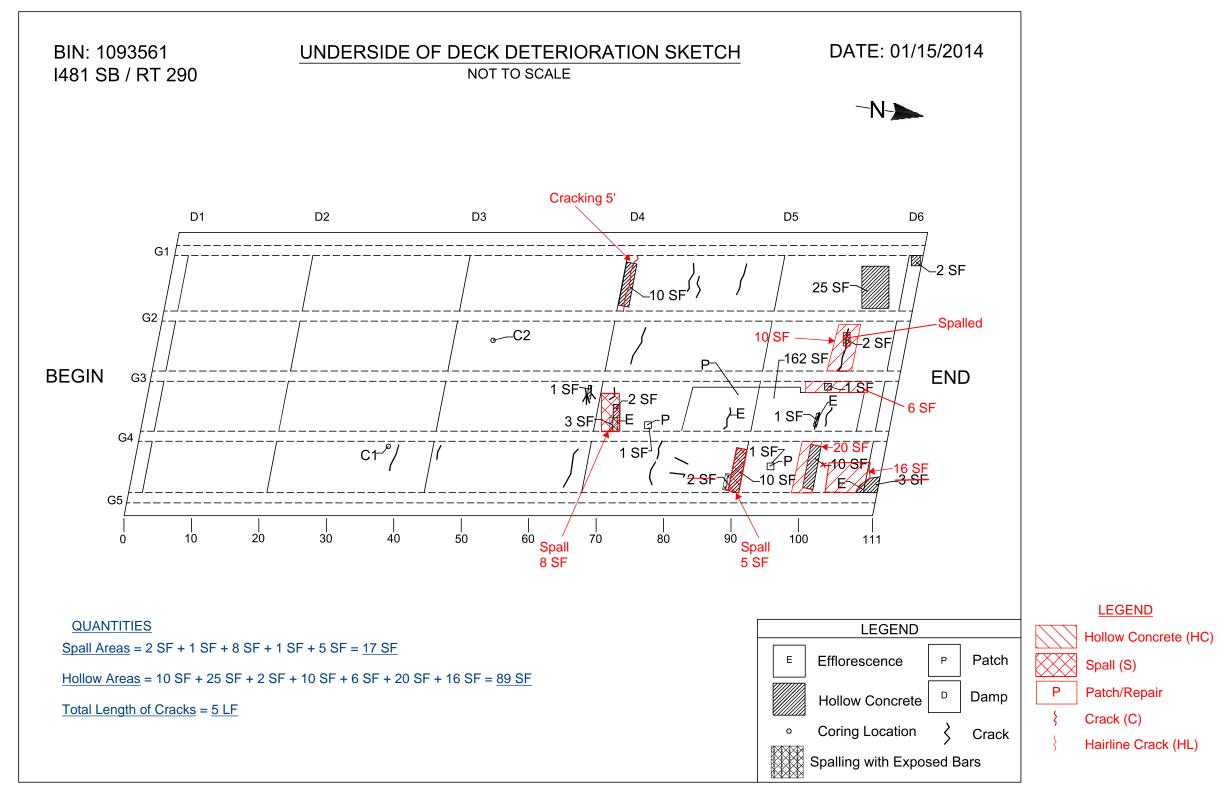


Hairline Crack (HL)



inspection.





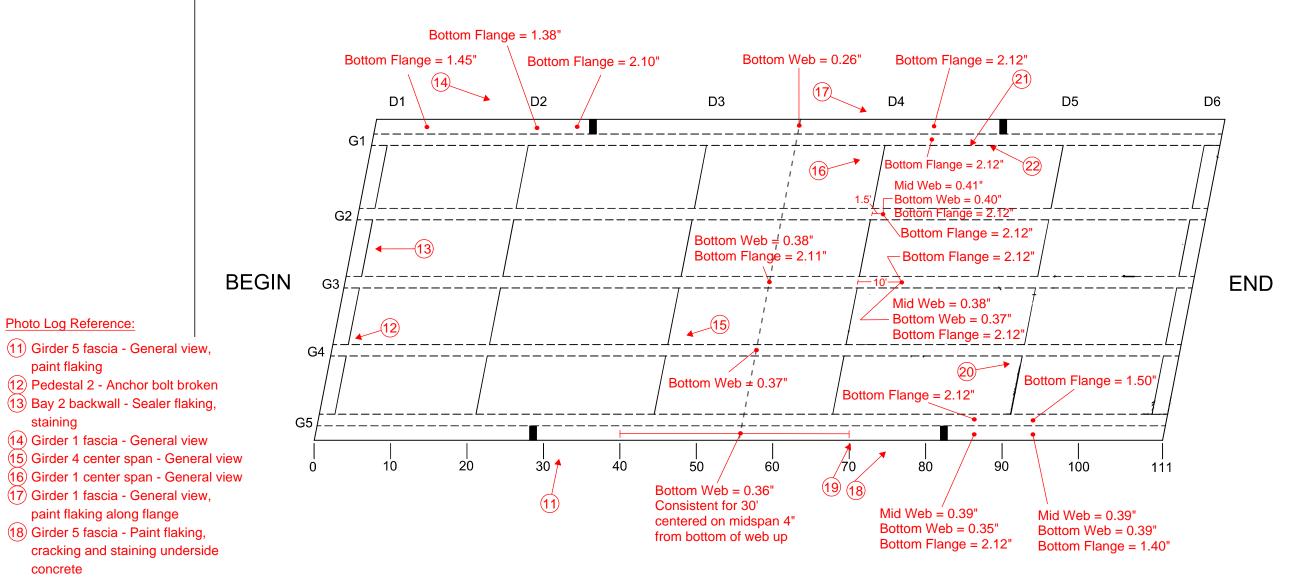
Note: BLACK text, hatching and linework is from the 2014 in-depth inspection and was present at the time of the 2022 in-depth inspection.

BIN: 1093561 I481 SB / RT 290

STEEL FRAMING PLAN NOT TO SCALE

DATE: 01/15/2014





Bottom Flange Thickness Transition

20) Girder 4 - Flaking paint, rust staining on backwall, pigeon waste

(19) Girder 5 fascia - Paint flaking,

cracking and staining underside

hazard (21) Girder 1 - Paint condition

of bridge deck

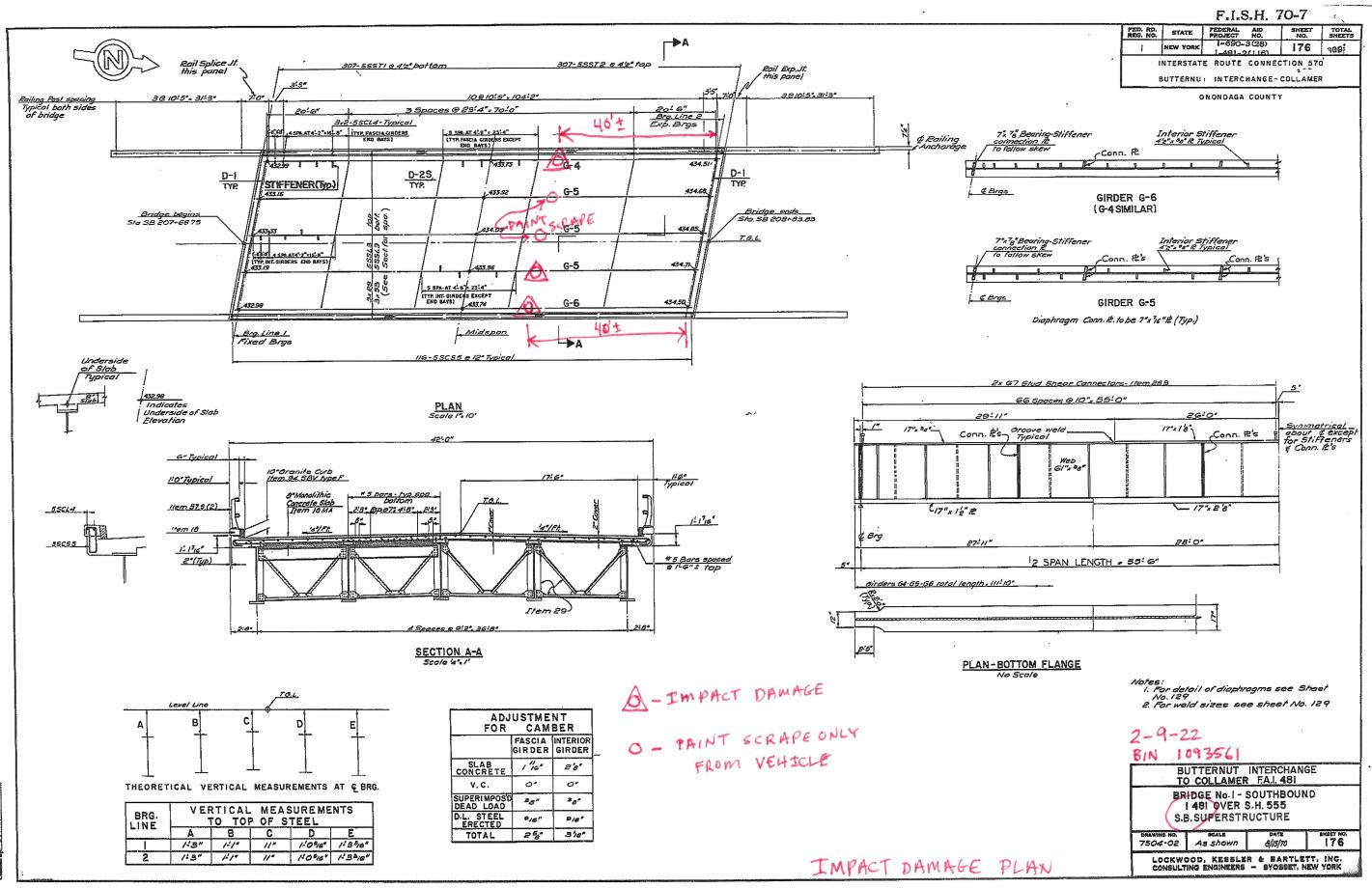
Photo Log Reference:

paint flaking

staining

concrete

22) Girder 1 - Impact damage to bottom flange



to be A. Sompsidis

IN-DEPTH PHOTO DOCUMENTATION





DESCRIPTION: BEGIN ABUTMENT – SPALLING CONCRETE FASCIA AND WINGWALL

PHOTO 1



DESCRIPTION: BEGIN ABUTMENT – SPALLING TOP OF BACKWALL AND RUST STAINING





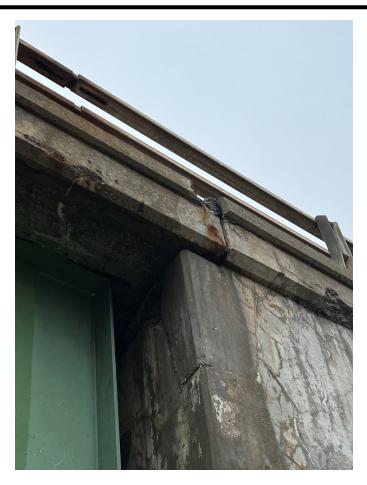


DESCRIPTION: BEGIN ABUTMENT – GENERAL VIEW

DESCRIPTION: BEGIN ABUTMENT – GENERAL VIEW, MAPCRACKING, REPAIR PATCH

PHOTO 3





DESCRIPTION: BEGIN ABUTMENT – SPALLING ON CONCRETE FASCIA, CRACKING AND RUST STAINING

PHOTO 5



DESCRIPTION: BEGIN ABUTMENT – PEDESTAL 1 – CRACKING AND RUST STAINING

РНОТО 6







DESCRIPTION: BEGIN ABUTMENT – PEDESTAL 1

SPALLING, CRACKING AND RUST

STAINING

DESCRIPTION: END ABUTMENT – GENERAL VIEW

PHOTO 7 PHOTO 8







DESCRIPTION: END ABUTMENT – GENERAL VIEW,

COMMUNICATION WIRES

DESCRIPTION:

END ABUTMENT – PEDESTAL 1, NW WINGWALL – SPALL, EXPOSED REBAR, RUST STAINING, COMMUNICATION

WIRES

PHOTO 9







DESCRIPTION: GIRDER 5 FASCIA – GENERAL VIEW, PAINT FLAKING

DESCRIPTION: PEDESTAL 2 – ANCHOR BOLT BROKEN

PHOTO 11







DESCRIPTION: BAY 2 – BACKWALL – SEALER FLAKING

OFF, STAINING

DESCRIPTION: GIRDER 1 FASCIA – GENERAL VIEW

PHOTO 13







DESCRIPTION: GIRDER 4 – CENTER SPAN – GENERAL

VIEW

DESCRIPTION: GIRDER 1 – CENTER SPAN – GENERAL VIEW

PHOTO 15







DESCRIPTION: GIRDER 1 FASCIA - GENERAL VIEW,

PAINT FLAKING ALONG FLANGE AND

WEB

DESCRIPTION: GIRDER 5 – FASCIA – GENERAL VIEW, PAINT FLAKING, CRACKING AND

STAINING UNDERSIDE CONCRETE

PHOTO 17







DESCRIPTION: GIRDER 5 – CENTER SPAN

FLAKING PAINT CRACKING AND STAINING UNDERSIDE OF BRIDGE

DECK

PHOTO 19

DESCRIPTION: GIRDER 4 – FLAKING PAINT, RUST

STAINING ON BACKWALL, PIGEON

WASTE HAZARD







DESCRIPTION: GIRDER 1 – FLAKING PAINT

DESCRIPTION: GIRDER 1 – IMPACT DAMAGE TO BOTTOM FLANGE

PHOTO 21